

AMENDMENTS TO THE CLAIMS:

Please AMEND claims 1, 4, 7, 8 and 10-12, as follows. For the Examiner's convenience, all claims currently pending in this application have been reproduced below:

1. (Currently Amended) An electron gun comprising:
 - a cathode portion which emits electrons;
 - an anode portion which accelerates the emission electrons;
 - a bias portion which is arranged between said cathode portion and said anode portion and controls trajectories of the emission electrons;
 - a shielding portion which is arranged below said anode portion and shields some of the emission electrons; and
 - a cooling portion which cools said shielding portion,

wherein said bias portion controls the trajectories of the electrons so as to form a crossover between said bias portion and said anode portion, and prevents the electrons from emitting on said anode portion.
2. (Original) The gun according to claim 1, wherein a top surface of said cathode portion is formed of a hemisphere or a hemispherical member.

3. (Original) The gun according to claim 1, wherein said shielding portion includes an incident portion on which the emission electrons become incident, and a tilt portion tilting with respect to an incident direction of the incident emission electrons, and said incident portion has a member that confines the emission electrons irradiating said tilt portion.

4. (Currently Amended) The gun according to claim 1, wherein said shielding portion and said cooling portion are separable, said shielding portion is made of a high melting material, and a low melting material is interposed between said shielding portion and said cooling portion.

5. (Original) The gun according to claim 1, wherein said cooling portion includes an insulator, and a cooling medium having a predetermined resistance is passed through said cooling portion.

6. (Original) The gun according to claim 5, further comprising a detecting portion which detects the electrons becoming incident on said shielding portion, and a control portion which controls an application voltage on the basis of a detection result of said detecting portion.

7. (Currently Amended) The gun according to claim 1, wherein an electrode is provided between said anode portion and said shielding portion, and a voltage is applied to said electrode.

8. (Currently Amended) The gun according to claim 1, wherein ~~the~~ said electron gun comprises a plurality of electron guns arrayed in a single chamber ~~of one atmosphere~~.

9. (Original) The gun according to claim 8, wherein said plurality of arrayed electron guns respectively include detecting portions each of which detects the electrons becoming incident on said shielding portion, and control portions each of which controls an application voltage on the basis of a detection result of said detecting portion, said control portions being controlled independently of each other.

10. (Currently Amended) An exposure apparatus ~~which comprises~~ comprising:
an electron gun according to claim 1, ~~and exposes~~ wherein said electron gun
exposes a substrate with an electron beam emitted from said electron gun.

11. (Currently Amended) An electron beam exposure apparatus comprising:
an electron gun including a cathode portion which emits electrons, an anode portion which accelerates the emission electrons, a bias portion which is arranged between said cathode portion and said anode portion and controls trajectories of the emission electrons, a shielding portion which is arranged below said anode portion and shields some of the emission electrons, and a cooling portion which cools said shielding portion; and
a stage which moves in holding a substrate to be exposed by using the emission electrons,

wherein said bias portion controls the trajectories of the electrons so as to form a crossover between said bias portion and said anode portion, and prevents the electrons from emitting on said anode portion.

12. (Currently Amended) A device manufacturing method comprising the steps of:
 exposing a substrate using an electron beam exposure apparatus according to
claim 11[[,]]; and
 developing the exposed substrate.